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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,268	03/17/2004	Hung-Shun Chao	24061.121 (TSMC2003.0710)	4207
42717	7590	01/12/2006	EXAMINER	
HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			ROBBINS, JANET L	
			ART UNIT	PAPER NUMBER
			2857	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/802,268	<b>Applicant(s)</b> CHAO ET AL.	
	<b>Examiner</b> Janet Robbins	<b>Art Unit</b> 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                         |                                                                             |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                                |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____                                                             | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The action is responsive to the Amendment filed on 27 December 2005. Claims 1-20 are pending. Claim 9 is amended.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang (US Patent 6,789,031).

With respect to claim 1, Wang teaches a computer-executable method (col 3, ln 34-36) of establishing a process parameter (col 3, ln 17-18) for manufacturing a semiconductor product (col 3, ln 19-20) prior to receiving manufacturing feedback regarding the process parameter (Wang uses information from an established manufacturing plant to establish the boundaries for his process parameters, therefore he establishes his process parameter prior to receiving feedback: col 5, ln 32-34), the method comprising (Fig. 2):

Art Unit: 2857

identifying a technology to which the process parameter is related (col 3, ln 17-20);

identifying at least a first existing part manufactured using the identified technology (col 3, ln 23-28; col 5, ln 51-55);

retrieving information associated with the first existing part, wherein the information reflects feedback data obtained while manufacturing the first existing part (col 5, ln 29-30; col 6, ln 20-24);

and calculating the process parameter based on the retrieved information (col 5, ln 44-67; col 6, ln 25-28; col 7, ln 51-62).

With respect to claim 2, Wang further teaches including calculating a statistical value of the retrieved information (col 6, ln 25-26).

With respect to claim 3, Wang further teaches the statistical value being an average, and wherein the average is used as the process parameter (col 6, ln 25-27).

With respect to claim 4, Wang further teaches identifying a second existing part manufactured using the identified technology (col 2, ln 18-22; col 3, ln 17-20, ln 23-28; col 5, ln 51-55);

retrieving information associated with the second existing part, wherein the information reflects feedback data obtained while manufacturing the second existing part (col 5, ln 29-30; col 6, ln 20-24);

filtering out information associated with the first and second parts that fails to meet at least one predefined criterion (col 6, ln 58-59).

With respect to claim 5, Wang further teaches defining a range of acceptable information for use in filtering, wherein the predefined criterion defines a boundary of the range (col 6, ln 31-34, ln 58-60).

With respect to claim 6, Wang further teaches calculating a mean and a standard deviation of the information (col 3, ln 57-58).

With respect to claim 7, Wang further teaches an upper boundary of the range defined based on the mean plus the standard deviation (col 4, ln 10-14), and wherein a lower boundary of the range is defined based on the mean minus the standard deviation (col 4, ln 14-18).

With respect to claim 8, Wang further teaches the upper and lower boundaries recalculated a predefined number of times based on information not filtered out in the preceding calculation of the range (Fig. 3: 306).

With respect to claim 9, Wang teaches a method (col 3, ln 34-36) comprising establishing a process parameter (col 3, ln 17-18) for manufacturing a semiconductor product (col 3, ln 19-20) prior to receiving manufacturing feedback regarding the process parameter (Wang uses information from an established manufacturing plant to establish the boundaries for his process parameters, therefore he establishes his process parameter prior to receiving feedback: col 5, ln 32-34), and thereafter using the calculated process parameter in a manufacturing process to fabricate the semiconductor product (col 5, ln 44-47), the establishing of the process parameter including:

identifying a technology to which the process parameter is related (col 3, ln 17-20);

identifying at least a first existing part manufactured using the identified technology (col 3, ln 23-28; col 5, ln 51-55);

retrieving information associated with the first existing part, wherein the information reflects feedback data obtained while manufacturing the first existing part (col 5, ln 29-30; col 6, ln 20-24);

and calculating the process parameter based on the retrieved information (col 5, ln 44-67; col 6, ln 25-28; col 7, ln 51-62).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US Patent 6,789,031) in view of Skidmore (US 6,622,102).

With respect to claim 10, Wang teaches a method for execution on a computer (col 3, ln 34-36) for determining a process parameter value to be used in manufacturing a semiconductor product (col 5, ln 44-47) prior to receiving feedback regarding the manufacturing, wherein the process parameter is associated with a specific technology

Art Unit: 2857

(col 3, ln 17-20; col 5, ln 32-34), the method comprising: calculating a mean of at least a selected data related to each part identifier; and using the mean as the process parameter (col 5, ln 44-47; col 6, ln 25-27; col 8, ln 32-33). Wang does not teach selecting one or more part identifiers representing parts based on the technology. Skidmore teaches using part identifiers specific to individual IC parts to construct data summaries (Skidmore: col 3, ln 20-24). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Wang to include the part identifiers of Skidmore because they would produce a more accurate, detailed, and useful database (Skidmore: col 1, ln 38-39).

With respect to claim 11, Wang further teaches calculating a range (col 6, ln 31-34, ln 58-60); and recalculating the mean using only selected data related to each part identifier that is within the range (col 4, ln 23-35).

With respect to claim 12, Wang further teaches calculating a standard deviation of the selected data (col 3, ln 57-58);

calculating an upper boundary of the range as the mean plus the standard deviation (col 4, ln 10-14); and

calculating a lower boundary of the range as the mean minus the standard deviation (col 4, ln 14-18).

With respect to claim 13, Wang further teaches multiplying the standard deviation by a constant value when calculating the upper and lower boundaries (col 4, ln 8-18).

With respect to claim 14, Wang further teaches defining a total number of calculations to be performed, wherein the total number identifies a number of times that

the mean is to be calculated after part identifiers are filtered out using the range (Fig. 3: 306).

With respect to claim 15, Wang further teaches assigning the specific technology to the process parameter (col 3, ln 17-33)

With respect to claim 16, Wang teaches a system for determining a process parameter value to be used in manufacturing a semiconductor product (col 5, ln 44-47) prior to receiving feedback regarding the manufacturing (col 5, ln 32-34), the system comprising: a semiconductor fabrication tool configured to execute a fabrication process (col 3, ln 1-2) using the process parameter value (col 4, ln 29-30), wherein the process is associated with a specific technology (col 5, ln 44-47). instructions for calculating a statistical value of the retrieved information (col 6, ln 25-26); and instructions for defining the process parameter value based on the statistical value (col 5, ln 44-47; col 6, ln 1-5). Wang does not teach the inclusion of a database. Skidmore teaches a database configured to store information identifying a plurality of parts and associated manufacturing information, wherein each part is associated with a technology and wherein the manufacturing information reflects feedback data obtained by manufacturing the parts (Skidmore: col 3, ln 42-48); and a plurality of software instructions including (col 3, ln 57-58): instructions for identifying one or more parts from the database having the same technology as the process (Skidmore: col 3, ln 20-23, ln 45-48); instructions for retrieving at least a portion of the manufacturing information associated with the identified parts from the database (Skidmore: col 3, ln 16-20). It would have been obvious to one of ordinary skill in the art at the time of the invention to



Art Unit: 2857

modify the teachings of Wang to include the database of Skidmore because the database of information is used to improve the manufacturing process by identifying failure trends based upon process variations (Skidmore: abstract, ln 9-11).

With respect to claim 17, Wang further teaches instructions for calculating a range (col 6, ln 31-34, ln 58-60); and instructions for recalculating the statistical value using only selected data related to each part identifier that is within range (col 4, ln 23-35).

With respect to claim 18, Wang further teaches the statistical value is a mean (col 6, ln 25-27) and wherein the instructions for calculating the range include:

instructions for calculating a standard deviation of the selected data col 3, ln 57-58);

instructions for calculating an upper boundary of the range using the mean plus the standard deviation (col 4, ln 10-14); and

instructions for calculating a lower boundary of the range using the mean minus the standard deviation (col 4, ln 14-18).

With respect to claim 19, Wang further teaches multiplying the standard deviation by a predefined constant when calculating the upper and lower boundaries (col 4, ln 8-18).

With respect to claim 20, Wang further teaches applying the process parameter value to the fabrication process (col 3, ln 1-2).

***Response to Arguments***

6. Applicant's arguments filed 27 December 2006 have been fully considered but they are not persuasive.

Applicant argues that Wang does not teach a single process; however, Applicant's arguments are not well taken. The claim language does not clearly state that a single process is being utilized. Furthermore, Wang does teach a single process within the two or more processes available which follows the calculation of the parameter established in the claim. Wang uses information from an established manufacturing plant to establish the boundaries for his process parameters. Therefore, he establishes his process parameter prior to receiving feedback (Wang: col 5, ln 32-34).

Applicant argues that Wang does not teach producing a process parameter as an output; however, Applicant's arguments are not well taken. Wang teaches calculating various parameters for manufacturing a semiconductor product at the end of his process (Wang: col 5, ln 44-67; col 7, ln 51-62), and therefore at the output.

In response to applicant's argument that neither Wang nor Skidmore are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Wang is monitoring the quality of manufacture for a semiconductor product (Wang: col 2, ln 66 – col 3, ln 28). Skidmore teaches a system

and method for tracking integrated circuit parts through the manufacturing process (Skidmore: col 1, ln 14-16). These are fully within the Applicant's field of endeavor as stated in the Background of the Application, as relating generally to a system and method for manufacturing a semiconductor product.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jang et al. (US Patent 5,740,065) discloses a method for manufacturing semiconductor devices.

Chong et al. (US Patent 6,8047,619) discloses process control based on tool health data.

Maekawa (US Patent 6,351,723) discloses a failure diagnostic method and apparatus for equipment and recording medium in which program causes the computer system to execute the process in accordance with such method is stored.


Kondo (US Patent 5,493,501) discloses a production control system selecting optimum dispatching rule.

Shi et al. (US Patent 6,772,034) discloses a system and software for data distribution in semiconductor manufacturing and method thereof.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet Robbins whose telephone number is 571-272-8584. The examiner can normally be reached on weekdays from 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

JLR  
6 January 2006

  
MARC S. HOFF  
SUPERVISORY PATENT EXAMINER  
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